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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,218

02/17/2004

Kazuya Kimura

5000-5147

1934

27123 7590 12/17/2007
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EXAMINER

STIMPert, PHILIP EARL

ART UNIT

PAPER NUMBER

3746

NOTIFICATION DATE

DELIVERY MODE

12/17/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/781,218

Applicant(s)

KIMURA ET AL.

Examiner

Philip Stimpert

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3 August 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-9, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (US 2002/0025265) in view of Henein et al (US 5,360,322) and Ghassaei (US 6,027,239).
3. Regarding claim 1, Ikeda teaches an electric compressor (10) comprising: a compressor housing (1, 51-52); a gas compression mechanism (60, 70) accommodated in the compressor housing (51-52); an electric motor (80) that drives the compression mechanism (60, 70); a motor driving circuit (2-4) that drives the electric motor; and a circuit cover (6) attached to an outer surface (1) of the compressor housing, wherein the compressor housing and the circuit cover define an accommodating space, wherein the motor driving circuit (2-4) is accommodated in the accommodating space. Ikeda does not teach that the motor driving circuit (2-4) is attached to the circuit cover, nor does Ikeda teach a fastener for attaching the motor driving circuit to the circuit cover which permits the motor driving circuit to move toward the circuit cover and prevents the motor driving circuit from being detached from the circuit cover. Henein et al teach that their control apparatus (3) is attached to the circuit cover, and that this creates a modular apparatus that is inexpensive to manufacture (col. 1, ln. 32-36, Fig. 3). Therefore it

would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ikeda's compressor to attach the motor driving circuit to the circuit cover in order to reduce manufacturing costs as taught by Henein et al. Ghassaei teaches a structure for mounting a "personality module" to an instrument package. In particular, Fig. 2 shows a circuit cover (50), a circuit board (24), and several fasteners (52) which prevent the circuit from being detached from the circuit cover. Further, as the presence of spacers (42) indicates, the fasteners permit the circuit board to move toward the circuit cover. Ghassaei teaches that the personality module is installed separately from the rest of the system (col. 3, ln. 50-51), which would lead one of ordinary skill in the art to the conclusion that the structure disclosed is useful in maintaining cohesion of a separately assembled structure. It would further have been obvious to provide fasteners to attach the motor driving circuit to the circuit cover in order to maintain cohesion of the circuit cover's separately assembled structure, as taught by Ghassaei.

4. Regarding claim 3, the combined references do not teach that the fasteners used include a bolt and a nut. However, screws, nuts and bolts are all well known fasteners in the art, and it is to be expected of one of ordinary skill in the art to be able to select an appropriate fastener for a given application.

5. Regarding claim 4, the combined references teach the limitation that the motor driving circuit is held between the circuit cover and compressor housing when the circuit cover is joined to the compressor housing.

6. Regarding claim 5, the combined references teach the limitation that the motor driving circuit includes a circuit board (see drawings in either reference) and a switching

element (Ikeda, paragraph 4, lines 5-11) and that the circuit board has surfaces facing towards and away from the circuit cover. The combined references do not explicitly teach that the switching element is attached to the surface facing away from the circuit cover, or that it is pressed against the compressor housing when the circuit cover is joined to the housing. However, Ikeda teaches that "heat generated by inverter 2 of drive circuit 4 is absorbed by lower temperature refrigerant gas through partition wall 1b," (paragraph 18, lines 3-5), and conductive contact between the switching element (inverter) and the compressor housing would have increased the cooling effect on the switching element. Therefore it would have been obvious at the time of the invention to one of ordinary skill in the art to arrange the switching element on the circuit board such that it was attached to the face opposed from the circuit cover and was pressed against the compressor housing when the circuit cover was assembled to the housing.

7. Regarding claim 6, the combined references teach the limitation that an adjusting member (either Ikeda's resin 100' or the circuit board supports of Henein et al) is arranged between the circuit cover and the circuit board, and if the switching element were pressed against the housing as above, the adjusting member would adjust force with which the switching element presses against the compressor housing.

8. Regarding claims 7-8 Ikeda shows, in Fig. 2, a body of resin 100'. This body of resin functions as a circuit board support member, and is located on a part of the surface of the circuit board facing the circuit cover which corresponds to the switching element, meeting the limitations of claims 7-8.

9. Regarding claim 9, the supports shown in Fig. 3 of Henein et al which join the circuit board to the circuit cover constitute a circuit board support member and, in particular, spacers.

10. Regarding claim 12, the combined references teach a method (Henein et al, col. 1, ln. 32-35) of assembling an electric compressor having a compression mechanism accommodated in a compressor housing, wherein the compression mechanism is driven by an electric motor to compress gas, the method comprising: attaching a motor driving circuit for driving the electric motor to a circuit cover; and joining the circuit cover, to which the motor driving circuit is attached, to an outer surface of the compressor housing such that the compressor housing and the circuit cover define an accommodating space for accommodating the motor driving circuit. Further, according to the combination, the step of attaching the motor driving circuit to the circuit cover includes attaching the motor driving circuit to the circuit cover with a fastener such that the motor driving circuit is prevented from detaching from the circuit cover and is permitted to move toward the circuit cover.

11. Regarding claim 14, the combined references teach that the motor driving circuit is held between the compressor housing and the circuit cover when the cover is joined to the housing.

12. Regarding claim 15, the combined references teach that the motor driving circuit includes a circuit board and a switching element, wherein the circuit board has a first surface facing the circuit cover and a second surface located on a side opposite from the circuit cover, and wherein the switching element is mounted on the second surface,

and wherein, when the circuit cover is joined to the compressor housing, the switching element is pressed against the compressor. For detailed discussion, please see the above treatment of claim 5.

13. Regarding claim 16, the combined references teach the limitation that an adjusting member (either Ikeda's resin 100' or the circuit board supports of Henein et al) is arranged between the circuit cover and the circuit board, and if the switching element were pressed against the housing as above, the adjusting member would adjust force with which the switching element presses against the compressor housing. The step of arranging that adjusting member is implicit in its presence in the disclosed structure.

14. Claims 10-11 and 17-18 are rejected under 35 U.S.C. 103(a) as being obvious over Ikeda in view of Henein et al. and Ghassaei as applied to claims 1, 3-9, 12, and 14-16 above, further in view of Kimura et al (US 2004/0013544).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and

reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

15. Regarding claims 10-11, while the previously combined references teach the use of a spacer between the motor driving circuit and the circuit cover, they do not teach that the spacer is a selected one of a plurality of spacers that have been prepared in advance having different thicknesses, nor do they teach an elastic member arranged between the compressor housing and the switching element. Kimura et al teach that "the thickness of the spacer 51 is selected... from the prepared spacers 51 having various thickness, and the selected spacer 51 is interposed between the motor drive circuit 41 and the cover member 38" (paragraph 47, lines 10-14). Kimura et al further teach a "sheet 45 having relatively high elasticity, relatively high insulating performance and relatively high heat conductivity is interposed between the first housing element 21 and the switching devices 44A of the motor drive circuit 41" (Kimura et al, paragraph 41). Kimura et al also teach that the use of this elastic sheet in cooperation with the spacer 51 "appropriately presses the switching devices 44A against the bottom surface 35A of the first housing element 21" (Kimura et al, paragraph 46, lines 4-8) and that the use of elastic members provides "high resistance against vibration" (Kimura et al, paragraph 42, last line). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the elastic member and selected

one of a plurality of spacers of Kimura et al with the compressor of the previous combination in order to reduce vibration wear on the drive circuit while maintaining relatively high heat radiation performance. As taught by Kimura et al., the switching element is pressed against the compressor housing via the elastic member when the circuit cover is joined to the compressor housing.

16. Regarding claim 17, the combined references teach the limitations that the adjusting member is made of resin, and that the method of assembly includes the steps of providing the resin (Kimura et al, paragraph 51) for the adjusting member between the circuit cover and the circuit board before the resin is hardened and attaching the circuit board to the circuit cover while the resin remains soft such that the thickness of the adjusting member between the circuit cover and the circuit board is adjusted.

17. Regarding claim 18, the combined references teach the limitation that the step of arranging the adjusting member includes arranging a spacer between the circuit cover and the circuit board and that the spacer is selected from a plurality of spacers having different thicknesses (Kimura et al, paragraph 47).

Response to Arguments

18. Applicant's arguments, see page 6, lines 12-18, filed 3 August, 2007, with respect to the rejection of claim 11 have been fully considered and are persuasive. The rejection of claim 11 under 35 U.S.C. 112, second paragraph has been withdrawn.

19. Applicant's arguments, see page 7, lines 4-13, with respect to claims have been fully considered and are persuasive. The rejection of claims 1 and 4-11 under 35 U.S.C. 102(e) has been withdrawn.

20. Applicant's arguments, see page 7, lines 4-13, with respect to the rejection(s) of claim(s) 1, 4-9, 12, and 14-16 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ghassaei.

21. Applicant's arguments, see page 7, lines 4-13, with respect to the rejection(s) of claim(s) 10-11 and 17-18 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ghassaei.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571) 270-1890. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM, Alt. Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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DEVON C. KRAEMER
PATENT EXAMINER

Devon Kraemer
12/19/07